

Notice of Allowability

Application No.

10/064,232

Examiner

Matthew A. Anderson

Applicant(s)

JENNY ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to election of 5/10/2004.
2. ☒ The allowed claim(s) is/are 1,2,4-11,14-27,29-38,42-46 and 50-53.
3. ☒ The drawings filed on 24 June 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/6/2003 ; 12/19/2002 ; 1/29/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413)
Paper No./Mail Date 6/24/04
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Election/Restrictions

1. This application is in condition for allowance except for the presence of claims 3, 12-13, 28, 39-41, and 47-49, drawn to Groups II, III, IV which were non-elected without traverse in the response dated 5/10/2004. Accordingly, claims 3, 12-13, 28, 39-41, and 47-49 have been cancelled.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Cancel non-elected c/ims 3, 12-13, 28, 39-41 + 47-49.
In claim 52, change "47" to read "46".

Authorization for this examiner's amendment was given in a telephone interview with Phillip Summa on 6/24/2004.

Allowable Subject Matter

3. Claims 1-2, 4-11, 14-27, 29-38, 42-46, 50-53 are allowed.
4. The following is an examiner's statement of reasons for allowance:

In respect to claims 1-2, 4-11, 14-26, the closest prior art of Carter Jr. et al. does suggest heating of the silicon carbide crystal to form semi-insulating SiC. However, this art makes no suggestion to control the cooling "to approach room temperature at a sufficiently rapid rate to maintain a concentration of point defects in the cooled crystal that remains greater than the first concentration" of point defects before heating.

Likewise, in respect to claims 27, 29-37, the specific controlled cooling rate of at least 30 degrees Celsius per minute from at least 2000 degrees Celsius to 1200 degrees Celsius or less before depositing an epitaxial layer of semiconducting material on the substrate is not found in prior art.

Additionally, in respect to claim 38, 42-45, the specific controlled cooling rate for a silicon carbide boule of at least 30 degrees Celsius per minute from at least 2000 degrees Celsius to approach room temperature before slicing and depositing an epitaxial layer of semiconducting material on the resultant sliced wafer is not found in prior art.

In respect to claim 46, 50-53, the heating of wafers sliced from a silicon carbide boule to at least 2000 degrees Celsius and cooling the heated wafer to approach room temperature at a rate of at least about 30 degrees Celsius per minute and then

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depositing an epitaxial layer of semiconductor material on the sliced wafer is not suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Anderson whose telephone number is (571) 272-1459. The examiner can normally be reached on M-Th, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAA
June 23, 2004

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

